

# Entrepreneurial coaching for innovation in SMEs: development and validation of a measurement scale

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## Abstract

**Purpose** – Coaching is a widespread form of human development that has grown considerably in recent years. However, it is not well understood in entrepreneurship and small and medium-sized enterprises (SMEs) and little is known about the success factors for coaching in SMEs. Thus, this article presents a theoretical framework for coaching SMEs. The paper reports on a study carried out to develop and validate a coaching model for entrepreneurship in SMEs.

**Design/methodology/approach** – A mixed methods approach was undertaken in SMEs in the Iranian pharmaceutical industry. Confirmatory factor analysis (CFA) was used to confirm the samples and the model's dimensions.

**Findings** – The results show five chief constructs of the entrepreneurial coaching model. In particular, the authors determine the importance of early goal setting and identify the essential characteristics of an effective entrepreneurial coach.

**Research limitations/implications** – Firstly, the data relied solely on the pharmacy industry in Iran, indicating a need for future studies to explore coaching programs across various industries and countries. Additionally, a quantitative aspect of the research involved participants answering questionnaires based on their perceptions. This subjective nature introduces a potential for inaccuracies in participants' perceptions and expectations. Furthermore, the inherent bias of program stakeholders may have led to exaggerated responses. To mitigate these issues, it would be beneficial to conduct experimental and longitudinal research, which could address these concerns more effectively.

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*Plain language summary:* The authors identify the necessary steps for developing successful entrepreneurial outcomes in small and medium-sized enterprises (SMEs). The authors' research findings enhance comprehension of the contextual factors, attributes of the coach and characteristics of the coachee that contribute to positive and impactful entrepreneurial coaching in SMEs while fostering a culture of innovation. Specifically, the authors emphasize the significance of early goal setting and strategy formulation while identifying the key qualities of an effective entrepreneurial coach.



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**Practical implications** – By utilizing a theoretical framework, the authors goal is to define the essential features of coaching in SMEs and compare it to other developmental interventions to highlight both commonalities and distinctions. This approach addresses the recent suggestions in coaching literature to distinguish coaching practices tailored for particular groups, specifically entrepreneurs involved in SMEs.

**Originality/value** – This study contributes to understanding the essential features for successful entrepreneurial coaching in SMEs.

**Keywords** Entrepreneurial coaching, SME, Human resource development, Individual, Capabilities

**Paper type** Research paper

## 1. Introduction

Scholars have recognized the significant contribution that entrepreneurship can make to an economy, and entrepreneurial endeavors have become a central goal for governments. Small and medium enterprises (SMEs) have an essential role in creating entrepreneurial opportunities that drive innovation, and coaching provides them with the support they need to innovate (Saunders *et al.*, 2013). Certainly, innovation is a major factor in the survival of many firms (Appolloni *et al.*, 2013; Delbufalo *et al.*, 2013).

However, to create a platform for innovation, SMEs must consider numerous factors. One of the most challenging is argued to be the development of its employees, termed “human resource development” (HRD). The argument for introducing HRD in SMEs is driven by the idea that competitive pressures make it essential to improve efficiencies and outcomes by upskilling employees with the appropriate mindsets and capabilities (Davidsson, 2006; Sheehan *et al.*, 2013). However, SMEs typically have substantially fewer resources and more barriers than multinational corporations (MNCs) wishing to initiate HRD programs (Nolan and Garavan, 2016). They often reject HRD because they consider it too sophisticated and expensive. Coaching is a unique solution to this dilemma for SMEs. It is a cost-effective, easily customized and reflective-oriented approach (Audet and Couteret, 2012; Kotte *et al.*, 2021). Entrepreneurial coaching provides guidance, advice and support to entrepreneurs (Kotte *et al.*, 2021) to help them overcome challenges and to develop the skills necessary to be successful (Bozer and Jones, 2018). It is an excellent way to help SMEs to develop their employees’ entrepreneurial capabilities by providing support and stimulating an entrepreneurial culture (Barrager, 2016).

However, the SME coaching literature is still immature (Tsai and Barr, 2021). We still know little about coaching to foster innovation in SMEs. For example, while scholars have identified three essential features in coaching—the coach, the coachee and the context (Audet and Couteret, 2012; Ben Salem and Lakhali, 2018), there is no understanding of these features at the employee level. This leaves a conspicuous gap in the extant literature. The absence of understanding coaching’s impact on employees at the SME level, particularly in terms of coach, coachee and context dynamics, is a clear research gap. The challenge for HRD in SMEs and the nuances underlining the necessity of upskilling employees through coaching need to be better understood, which underscores the need for further research. This study addresses this gap by examining the operationalizing and critical dimensions of the entrepreneurial coaching model in the context of the SME. Consequently, the research questions probe: “*What are the critical dimensions of the entrepreneurial coaching model in SMEs?*”

The aim of this article is to introduce a conceptual framework for coaching in SMEs that provides a theoretically and empirically grounded basis for future research. Within this conceptual framework, we seek to clarify key characteristics of coaching in SMEs. In doing so, we respond to recent calls in the coaching literature to differentiate coaching for specific populations (Cooper, 2019; Bozer and Jones, 2018).

The study makes several contributions to the extant literature and to practice. We identify the actions that are necessary for the development of effective entrepreneurial outcomes in SMEs. Our research findings contribute to understanding the contextual, coach and coachee characteristics for positive and effectual entrepreneurial coaching in SMEs. In particular,

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we determine the importance of early goal setting and strategy development and identify the essential characteristics of an effective entrepreneurial coach. This research contributes to understanding the contextual, organizational and individual characteristics for successful coaching in SMEs. The remainder of the manuscript presents in a traditional manuscript arrangement. First, the theory-building section explores the extant coaching literature, including an overview of coaching and critical elements of an entrepreneurial coaching program. Second, we explain the mixed methodology, and third, the findings are examined. Fourth, a discussion follows and finally, a conclusion.

## 2. Theory building

### 2.1 Coaching an overview

There are many characterizations of entrepreneurial coaching. While [Audet and Couteret \(2012\)](#) reflect on coaching to strengthen entrepreneurial activities, [Ting et al. \(2017\)](#) considered entrepreneurial coaching to reduce uncertainty by promoting knowledge, empathy and capabilities. Although these definitions have different angles, scholars generally express coaching as a two-way relationship in which a coach provides support and guidance to an inexperienced person (the coachee). Though the coach may benefit from the coaching relationship, the primary purpose of this relationship is the coachee's development ([Eby et al., 2013](#)). More specifically, coaching is an HRD approach that facilitates employee learning and development ([Bartlett, 2007](#)). It is about nurturing an employee's potential talent and maximizing their performance. Coaching has an advantage over other HRD approaches as it steers individuals to identify areas for development, cultivates their strengths and encourages them to be focused and steadfast on their personal goals. In this way, coaching can be seen as a bespoke HRD technique. Crucially, coaching can help to overcome individual self-efficacy doubt ([Khakwani, 2012](#)).

Coaching is a multidisciplinary concept, prominent in sports, particularly football, where the coach can change the outcome of a match significantly by preparing a team for an extreme level of performance. Football coaches such as Italy's Mancini, Spain's Enrique and Germany's Klopp are highly paid and almost have the status of film stars. They are examples of extraordinary coaches who have qualities of leadership, ethics, reputation and experience ([Dass, 2022](#)). We can take from the football world that a good coach can develop an individual through experience and knowledge ([Bozer and Jones, 2018](#)). Coaching is essential for individual development and team growth. It is a knowledge transfer, cognitive and managerial process for teams and individuals with opportunities to ensure continuity, efficiency and sustainability ([Audet and Couteret, 2012](#)). Coaching is a vital business tool, acting as a motivational catalyst for entrepreneurs. As such, SMEs stand to gain significantly from it ([McKevitt and Marshall, 2015](#)).

### 2.2 Critical elements of an entrepreneurial coaching program

Successful coaching has been found to be dependent on factors such as demographics, professional background (e.g. psychology vs non-psychology), procurement terms (*i.e.* the number of sessions), as well as specific skills, behaviors and strategies ([Cooper, 2019](#)). Additionally, effective coaching programs are associated with coach-compatibility, student personality traits, precise questioning and feedback methods, interpersonal communication tactics and even the incorporation of storytelling and metaphors. Each of these components can influence the student's motivation and, in the end, the overall results of the coaching initiative ([De Haan et al., 2013](#)).

Notwithstanding the relationship between the coach and the coachee is paramount in coaching. The entrepreneur's motivation, empathetic understanding, communication and mutual respect can increase when this relationship is strong ([Audet and Couteret, 2012](#); [Rekalde](#)

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*et al.*, 2015; Ting *et al.*, 2017). Additionally, a high-quality relationship will increase a sense of trust (Gregory and Levy, 2011; Sonesh *et al.*, 2015; St-Jean and Audet, 2013), between the coach and the entrepreneur. Choosing a coach based on gender and culture is also important in the coaching relationship. Jones (2014) found a significant relationship between individuals' extraversion and coaching effectiveness. Empathy and listening skills have also been valuable (St-Jean and Audet, 2013). Thus, in a successful coaching relationship, the coach and the entrepreneur should form an interactive, reciprocal relationship, define different goals and take specific actions to ultimately achieve the end goal (Ben Salem and Lakhali, 2018).

### 2.3 Coach characteristics

The dynamics between the coach and the coachee play a crucial role in determining the success of the coaching effort (Ben Salem and Lakhali, 2018). McKevitt and Marshall (2015) articulate the entrepreneurial coaching model across three key areas: the coach's ability to empathize, adherence to coaching standards and setting clear expectations for the entrepreneur's performance. Consequently, the coach is considered essential in the coaching dynamic (Audet and Couteret, 2012) and the coach's personality is a critical factor (Fisher and Ford, 1998). Other characteristics such as integrity, self-confidence, experience and a high level of achievement (Ben Salem and Lakhali, 2018; McCarthy, 2014; McKevitt and Marshall, 2015) are also important. Effective coaching requires the coach to have a positive attitude and a cheerful disposition (McKevitt and Marshall, 2015; Rekalde *et al.*, 2015). A coach should be able to gain the trust of his coachee to help build her/his confidence (Rekalde *et al.*, 2015). The coach must empower the coachee to accept change, acquire new knowledge and skills, create effective communication (St-Jean *et al.*, 2014) and refrain from being too directive (Kotte *et al.*, 2021).

Selecting a coach based on gender and culture is also important in the coaching relationship. Jones (2014) found a significant relationship between individuals' extraversion and coaching effectiveness. Empathy and listening skills have also been valuable (St-Jean *et al.*, 2014). Thus, in a successful coaching relationship, the coach and the entrepreneur should form an interactive, reciprocal relationship, define different goals and take specific actions to ultimately achieve the end goal (Ben Salem and Lakhali, 2018). The coach does several things in the coaching program. First, she/he must consider building a good relationship (Gan and Chong, 2015; Grant *et al.*, 2017; Gregory and Levy, 2011). Appropriate adaptation and relationship between the coach and the coachee are essential to increase and raise the level of self-awareness and learning and thus change behavior (Ben Salem and Lakhali, 2018).

### 2.4 Coachee characteristics

Coachee motivation is a crucial factor for coaching success (De Haan *et al.*, 2016; McKevitt and Marshall, 2015; Rekalde *et al.*, 2015; St-Jean *et al.*, 2014). According to goal-setting theory, motivation engages vital goals that are theoretically and empirically related (De Haan *et al.*, 2016). Azizi and Godarzi (2015) contend that the motivation of the coachee is essential for setting and achieving goals. Consequently, she/he must be motivated to participate in the coaching program (Eby *et al.*, 2013; St-Jean and Audet, 2013; Sonesh *et al.*, 2015). Additionally, the coachee must consider the coach as a partner (Kotte *et al.*, 2021). In a partnership relationship, the coachee is more likely to be motivated to develop their own solutions. In addition to motivation, the coachee must be committed and the bond must be reciprocal (Gan and Chong, 2015; Rekalde *et al.*, 2015; Turner, 2012).

### 2.5 SME conditions and requirements

SME managers may negatively perceive professional consultants for several reasons. For example, they may reason that the advice given by consultants needs to be more practical and

appropriate for their particular business. They may consider that consultants do not understand the nuances of SMEs. [Audet and Couteret \(2012\)](#) argue that consultants often lack objectivity and a focused perspective. Furthermore, SME managers may reject outside assistance because they prefer absolute independence (one of the main motivations for creating capital is independence) and are also concerned that outsiders may find them incompetent ([Audet and Couteret, 2012](#)). Nonetheless, it is essential for SMEs to create a culture of innovation ([Ozeren et al., 2013](#)) by supporting the innovative activities of individuals ([Ben Salem and Lakhal, 2018](#); [Rosha, 2015](#); [St-Jean and Tremblay, 2012](#)).

### *2.6 Consequences and outcomes*

In sum, effective coaching in SMEs increases individual entrepreneurial capabilities, which can lead to improvements in firm productivity, quality, customer service and satisfaction ([Grover and Fumham, 2016](#)). Acquiring these capabilities is achieved by implementing standardization steps of coaching methods and creating empathy between the coach and coachee ([Ben Salem and Lakhal, 2018](#)). Despite the importance of this issue, research is still in its infancy, and there is limited knowledge about the role of coaching in SMEs ([Wu, 2016](#)). To fully understand the coaching program in SMEs, we need to understand the type of programs available and their components.

## **3. Methodology**

### *3.1 Study context*

This study took place in the Iranian pharmaceutical industry. The pharmaceutical business is an essential industry in Iran, and it can compete ably in the global marketplace. For humanitarian reasons, there are no sanctions on the industry in Iran. The firms used in the study are in the Tehran and Alborz provinces, where more than 60% of the pharma businesses are located. The pharmaceutical industry is one of the most critical and significant global industries, and it has experienced a threefold growth rate from 2001 to 2021. Historically, Iran has been a leader in this industry, and presently, four companies dominate the Iranian market. The industry serves 96% of the Iranian domestic market and exports to other countries. At least partly due to the industry's longevity in Iran and the government's supportive policies, a culture of mentoring and coaching has evolved ([Raza and Ahmed, 2020](#)).

### *3.2 Reasoning for a mixed methodology*

This study used a mixed methodology. The utilization of mixed methods in research provides a robust and comprehensive approach to investigating complex research questions making it relevant to the use of mixed methods in SME business research. This approach, which combines both qualitative and quantitative methodologies, offers several significant advantages that contribute to a deeper understanding of the phenomena under investigation ([Bazeley, 2019](#)). The decision to employ a mixed methods approach in the present research is rooted in the recognition that a single method may not capture the multifaceted nature of managerial dynamics within SMEs. [Creswell and Creswell \(2017\)](#) emphasize that the integration of diverse viewpoints is a cornerstone of the mixed methods approach. By incorporating both qualitative and quantitative elements, researchers can capture a more complete picture of the intricate interplay between variables, allowing for a richer interpretation of findings.

[Johnson et al. \(2007\)](#) emphasize that mixed methods research is a versatile strategy that enables researchers to harness the strengths of both qualitative and quantitative methodologies. This blending of approaches transcends the limitations inherent in relying

solely on one method. Quantitative methods offer statistical rigor and generalizability, while qualitative methods provide insights into the nuances and contextual factors that influence management practices in SMEs. One of the key benefits of employing mixed methods is the opportunity to attain complementary strengths and mitigate overlapping weaknesses associated with quantitative and qualitative methods (Johnson and Onwuegbuzie, 2004). This approach not only enhances the validity and reliability of the findings but also fosters a more holistic understanding of the intricate phenomena under investigation. Complex research questions, often encountered in management SME research, demand a multi-dimensional perspective, which mixed methods research readily provides.

### 3.3 The qualitative phase

The qualitative research method identifies the dimensions and characteristics of our entrepreneurial coaching model. In total, 16 participants were recruited from the Iranian Food and Drug Organization (FDO), the Iranian equivalent of the The United States Food and Drug Administration (FDA). The participants included senior managers with coaching experience, professional entrepreneurs and managers. The sample also included human resource managers responsible for implementing the coaching program. The interviews were in-depth and semi-structured lasting between 60 and 90 min. The interviews mainly focused on extracting events and facts related to coaching programs. Interviewees were selected through purposive sampling and snowballing. Table 1 illustrates the characteristics of the participants.

Qualitative research is a process that seeks an in-depth understanding of social phenomena within their usual setting, trusting the experiences of participants (Denzin and Lincoln, 2011). Hence the semi-structured interview questions were concerned with why certain things happened and how they may be related to reality based on the events. Examples of questions are illustrated in Appendix 1. The interviews were audio-recorded and subsequently transcribed and then analyzed using MAXQAD 12.

Case	Gender	Age	Education degree	Work experience(year)	Position	Coaching course
1	Male	50	Doctor	10	CEO	Business coaching
2	Male	49	Doctor	13	HRM	
3	Male	44	Doctor	17	CEO	Business coaching
4	Male	53	Ph.D	16	Production Manager	Entrepreneurship coaching
5	Male	60	Doctor	18	CEO	
6	Male	44	Ph.D	14	HR	Business coaching
7	Male	48	Doctor	15	CEO	
8	Female	51	Doctor	6	HRM	
9	Female	47	Doctor	16	CEO	
10	Male	35	Master	13	QC manager	
11	Male	30	Master	6	R&D Manager	Business coaching
12	Male	28	Master	5	QC manager	
13	Male	35	Master	9	Education manager	
14	Male	40	Ph.D	12	R&D Manager	Business coaching
15	Female	37	Master	11	Education manager	
16	Female	29	Master	7	QC manager	

Source(s): Authors' own work

**Table 1.**  
Participant profile



The qualitative analysis included a rigorous coding method, as suggested by Glaser and Strauss (1967). It included three steps: 1. recognition and coding of concepts (open coding); recognition and coding of categories derived from concepts (axial coding); and creation of categories based on research dimensions and the frequency of each category. Eventually, 471 concepts were identified and meticulously categorized into the most central or core concepts. In addition, an intra-topic agreement method has been used to calculate the reliability of the interviews. To improve the reliability of the interviews, we used the kappa coefficient method of two coders (evaluators), and another researcher was asked to participate as a research partner (coder). In each interview, the codes were the same for both researchers. The second researcher marked the codes as either “agreement” or “disagreement.” The researcher then coded seven interviews with this research colleague, and the kappa coefficient (0.834), which is used as an indicator of the reliability of the analysis, was calculated using the software.

The findings of the qualitative section helped design the questionnaire items for the survey in the quantitative part of the study. Table 2 illustrates an overview of the coding categories.

### *3.4 Quantitative phase*

To validate the identified dimensions and characteristics of the qualitative study, a survey sampled 371 trainers from a pharmaceutical company with a history of participating in coaching programs. Over 77% of the sample had a master’s degree and 23% were physicians. Also, 74% of respondents had more than eight years of experience in the company and 25% had more than six years of experience in education. Three hundred forty-five questionnaires were sent out and 317 were eventually accepted.

In the questionnaire the respondents were asked to express their views on a 5-point Likert scale (5 = strongly agree to 1 = strongly disagree). The questionnaire was designed and the main structures and defined items were approved and agreed upon, which was determined by examining the content ratio index (CVR) with a coefficient of 0.88. A total of 145 items were designed based on the Likert scale and executed in the preliminary stage. After the preliminary stage, according to the experts and its experimental implementation, 94 items were determined for the final questionnaire.

### *3.5 Statistical testing of scales*

The first step in statistical evaluation is an exploratory factor analysis (EFA) scale used to identify items with a significant variance. However, the sample size and the attempt to test factor validity by randomly dividing the data into exploratory and confirmatory data sets have been challenging. For instance, the choice of sample size may yield lasting results in small samples if the factor loads are large enough. Therefore, it is recommended that instead of focusing only on the sample size, we should carefully pay attention to the selection of variables highly saturated with these factors, so we first determined the correlation between factors to be the most central variables for the case area. Furthermore, we used a multi-step method to reduce the number of measurement factors with the target item.

As mentioned above, we first assigned the findings to an exploratory data set (145 items), later summarized and merged into 94 items. Although having an internal correlation between variables is desirable as a prerequisite for factor analysis, having a strong correlation between two or more variables can create the problem of multiple alignments. To investigate this, we expended a matrix of bivariate correlations to ensure that none of these correlations is greater than 0.9. Next, the main axis factor analysis of 94 items was performed. Bartlett’s sphericity test was statistically significant, and the value of the Kaiser-Mir-Olkin index of 0.82 was desirable. An inclination period (promex) causes the factors to have a common variance. This is appropriate for our paper because we have predicted factors that are probably

			Interviewees	
Basic goals	Individual	Change attitude	I4, I6, I13, I12, I2, I11, I8, I5, I1 and I16	
		Increase experience	I11, I13, I16, I9, I1, I6, I14 and I5	
		Self-awareness	I1, I2, I10, I14 and I16	
	Organizational	Increase effectiveness	I6, I13 and I2	
		Familiarity with new processes	I2, I12, I3, I9, I10, I15 and I14	
		Market access	I2, I8, I7, I11, I4 and I1	
Superior goals	Market	Superiority over competitors	I16, I3, I12, I1, I2, I4 and I5	
		Creative thinking	I3, I12, I7, I11, I16, I15, I4, I6, I8, I2 and I5	
		Entrepreneurial learning	I6, I8, I2, I13 and I15	
	Individual	Entrepreneurial self-efficacy	I16, I9, I12, I8, I13, I3, I4 and I6	
		Organizational	Improve new activities	I16, I12, I1, I3, I9, I16 and I15
			Modify processes	I7, I9, I2, I1 and I14
	Market	Meet market needs	I5, I12, I14, I7, I16, I13, I10 and I1	
		Market development	I9, I3, I10, I11, I14, I2, I13 and I4	
		General personality traits	Self-awareness	I2, I5, I3, I12 and I1
Purposefulness	I3, I8, I2, I13, I16, I12, I7, I5 and I1			
Specific personality traits	Risk-taking		I3, I5, I15, I9, I6, I12, I13, I7 and I1	
	Entrepreneurial mentality	I6, I3, I2, I11, I13, I3, I10, I7, I5 and I1		
	Ambitious	I6, I4, I2, I1, I3, I8, I9, I10, I7 and I5		
Coach character	Knowledge and skills	Appropriate communication	I10, I14, I11, I16, I6, I12, I4, I7, I5 and I1	
		Creative and challenging questions	I11, I13, I8, I1, I16 and I10	
		Active listener	I2, I15, I8, I4, I3, I5, I3, I12, I10 and I16	
	Personality traits	Give feedback	I3, I10, I8, I7 and I2	
		Experience the entrepreneurial environment	I1, I13, I12, I9, I10, I15, I3, I2, I7, I4 and I5	
		Confident	I14, I15, I7, I2, I12 and I4	
		High achiever	I13, I7, I6 and I12	
		Understanding emotions	I13, I3, I12 and I10	
		Ability to transfer knowledge	I6, I2, I13 and I1	
	Experiences	Mental challenge	I4, I3, I12 and I5	
		Coaching experience	I1, I2, I15	
		Experience of starting new businesses	I6, I11, I8 and I12	
		Creating mental challenges	I4, I3, I12 and I5	
		Participating in the processing of ideas	I1, I13, I15, I10, I16 and I5	
		Entrepreneurial activities	I1, I15, I4, I8 and I5	

*(continued)***Table 2.**  
Coding categories



			Interviewees
Organizational conditions	Structural	Participate in a new product development	I12, I14, I13 and I4
		Collaborate to create opportunities	I5, I14, I1, I12 and I5
		Entrepreneurial networking	I5, I14, I2, I15, I12 and I7
	Administrative	Reduce redundant processes	I6, I13 and I8
		Increase change capacity	I6, I14, I12 and I7
		Supporting creative ideas and designs, Rewarding ideas	I10, I3, I6, I14, I4, I7 and I1
		Employing creative people	I16, I8, I10, I3 and I1
		Collaborating with coaches to facilitate matters	I4, I13, I6, I15 and I10
	Cultural	Entrepreneurial culture	I13, I12, I2, I8, I14, I11, I10, I4, I7 and I1
learning as value		I14, I5 and I11	
Emphasis on entrepreneurial coaching method		I2, I13, I14 and I16	
Actions	Bilateral	Sense of cooperation	I16, I12, I2, I15, I4, I7 and I5
		Bilateral evaluation	I10, I1, I13 and I11
	Coach	Curiosity	I6, I12, I2, I5 and I11
		Creative behaviors	I13, I1, I2, I3, I15, I10 and I7
		Transparency	I9, I12, I8, I10, I4, I11 and I2
		Discipline	I6, I14, I2 and I1
		A good space to present ideas	I13, I15, I14, I10, I7, I9, I2 and I4
	Coachee	Question design	I9, I8, I15, I12 and I14
		Preparation and readiness	I6, I14, I8, I13, I15, I7, I16, I11, I12, I2 and I10
Outcomes	Individual	Strengthen creative thinking	I9, I13, I16, I12, I2 and I4
		Turn past experiences into new knowledge	I14, I1, I11, I4 and I12
		Strive to generate new and diverse ideas	I8, I9, I13, I15, I14 and I12
		Focus on providing creative solutions	I4, I1, I3, I5, I12, I2, I13 and I8
		Sense of responsibility to the presented ideas	I12, I13, I6, I5, I4 and I15
		Increase risk-taking	I2, I9, I13, I1, I16 and I15
	Organizational	Starting a new business	I9, I2, I8 and I11
		creating new needs	I5, I1, I12, I9, I6, I7, I9, I10 and I15
		increasing customers	I8, I12, I10, I16, I6, I15 and I9
		Developing and improving existing products	I7, I9, I12, I2, I1 and I14
		spin off	I1, I8, I9, I13, I10, I6 and I15
		Replacing	I15, I8, I7, I6 and I10
Disseminating new knowledge	I7, I2, I13, I16, I6 and I3		

**Table 2.** Source(s): Authors' own work

sub-dimensions of a common structure. If the factors are uncorrelated, an inclined or vertical period will produce the same result, but when the factors are correlated, an inclined period will cause information loss.

The Pebble test has been used to select the appropriate number of agents. The results of the pebble diagram illustrate the five factors identified in the study. Furthermore, explain the eigenvalues above 1.0 and 54.39% of the variance. Appendix 2's structural matrix shows the correlations between items and factors. The output results showed that except for the items conflict reduction, optimal use of technology in service delivery, ability to understand others, readiness, updating methods and processes, all operating loads of the remaining items were more than 0.4, Which indicates that the items are appropriate. These coefficients also represent all available paths from one variable to one factor because there is a correlation between these factors. In contrast, existing coefficients are similar to standardized regression coefficients and show only a direct path from one factor to another variable. We have examined both matrices while naming variables and interpreting factors.

## 4. Findings

### 4.1 The dimensions of the entrepreneurial coaching model

EFA shows that the entrepreneurial coaching model has five dimensions. The first dimension is the most dominant and explains 33.23% of the variance, while the other dimensions explain 23.51%, 20.97%, 22.85% and 19.68% of the variance. Table 3 shows that the five factors are significantly related to each other.

According to the data in Table 3, there is a good correlation between the characteristics of an entrepreneurial coach. Also, there is a strong correlation between the component of coaching actions and entrepreneurial coaching achievements. The characteristics of an entrepreneurial coach with a score of 0.511 have a weaker correlation than other components.

In the first dimension, five factors are strongly correlated with the characteristics of *entrepreneurial coaching*, and these factors are the key findings of this research, which are: creative and challenging questions, the experience of starting new businesses, creating mental challenges, participating in processing ideas and getting acquainted with entrepreneurial activities. In the second dimension two factors strongly correlate with the coaching dimension: having an ambitious spirit and a creative and innovative mentality. In the third dimension, six factors strongly correlate with organizational requirements. For example, there is more focus on the managerial and organizational structure, such as establishing relationships, exchanging knowledge, new product offerings and supporting individual innovative actions. In the fourth dimension, three factors strongly correlate with other factors in the relationship between coach-coach, such as curiosity, creative behaviors and the appropriate space to present ideas. In the fifth dimension, representing the main output of the model, not the factor, they are correlated with the outcome dimension. According to the exploratory factor analysis, the structural model of the research is presented in Figure 1 and Table 4.

### 4.2 Confirmatory factor analysis

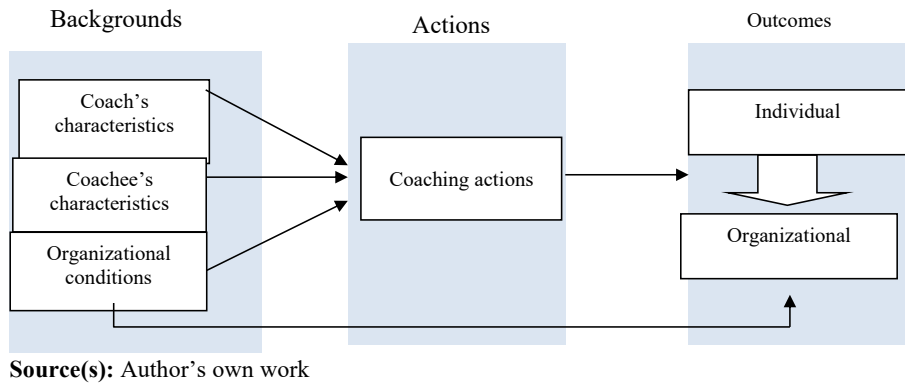
The correlation pattern between these five factors shows significant variance between coach characteristics, coachee characteristics, organizational conditions and requirements,

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Factor 1 -coach characteristics	1	0/665	0/673	0/538	0/511
Factor 2 -coachee characteristics	0/578	1	0/702	0/622	0/564
Factor 3 -organizational conditions	0/646	0/608	1	0/605	0/657
Factor 4 -coaching actions	0/599	0/566	0/618	1	0/722
Factor 5 -outcomes	0/579	0/701	0/634	0/575	1

Source(s): Authors' own work

**Table 3.**  
Correlation between the dimensions of entrepreneurial coaching

**Figure 1.**  
Entrepreneurial  
coaching process



		Items
Basic goals	Individual	Change attitude, increase experience and self-awareness
	Organizational	Increase effectiveness and familiarity new processes
	Market	Market access and superiority over competitors
Superior goals	Individual	Creative thinking, entrepreneurial learning and self-efficacy
	Organizational	Improve new activities and modify processes
	Market	Meet market needs and market development
Coachee character	General personality traits	Self-awareness and purposefulness
	Specific personality traits	Risk-taking, entrepreneurial mentality and ambitious
Coach character	Knowledge and skills	Communication, active listener, feedback and entrepreneurial culture
	Personality traits	Confident, high achiever, emotional intelligence and knowledge transfer
	Experiences	Coaching and start-up experience, creativity and entrepreneurial activities
Organizational conditions	Structural	New product unit, collaborate to create opportunities and entrepreneurial networking
	Administrative	Reduce redundant processes and increase change capacity Supporting and rewarding creativity, recruiting creative people and collaborating
	Cultural	Entrepreneurial culture, emphasis on learning and entrepreneurial culture
Actions	Bilateral	Sense of cooperation and bilateral evaluation
	Coach	Curiosity, creativity, transparency, discipline and context to present ideas
Outcomes	Coachee	Question design, preparation and readiness
	Individual	Increase creative thinking, turn past experiences into new knowledge, strive to generate new and diverse ideas, focus on providing creative solutions, sense of responsibility and increase risk-taking
	Organizational	Starting a new business, developing and improving existing products, replacing, disseminating new knowledge, creating new needs and increasing customers

**Table 4.**  
Components and  
indicators of  
entrepreneurial  
coaching

**Source(s):** Authors' own work

coaching actions and outcomes. Therefore, in the next step, CFA was used to confirm the samples and the model's dimensions. We used Amos 21 to analyze the dimensions and factors, as shown in Table 5.

As shown in Table 5, the chi-square ratio is high, in which case the chi-square ratio should be considered as the degree of freedom (Chi-square/df), the acceptable amount of which is between two and five. However, all dimensions are between these two numbers and indicate the desirability of each dimension. On the other hand, the root mean square error of approximation (RMSEA) is less than 0.08 and all model dimensions are acceptable. The rest of the estimated indicators are also satisfactory, indicating that the measurement model is a good fit.

After reviewing and confirming the model, Table 6 shows the standard regression coefficient (weight) with two measurements of reliability (critical ratio CR) and Cronbach's alpha (α) and the average extracted variance (AVE) for each dimension. Cronbach's alpha coefficient and CR should be higher than 0.7 for AVE equal to 0.5 to be optimal.

### 5. Discussion

This study attempts to identify the factors, indicators and accreditation of the components of the SME coaching model. Our research has identified and validated the dimensions of a novel entrepreneurial coaching model. The model is the first to identify five main dimensions and 14 indicators based on the findings. Therefore, the present research makes several significant contributions to theory and practice.

First, we have identified the vital components of the coaching program. This program can be a framework for researching and implementing SME and entrepreneurial coaching programs. Second, we identify that it is critical that the program's objectives be clearly defined at the commencement of the coaching. Third, supporting earlier research (Audet and Couteret, 2012; Ben Salem and Lakhali, 2018; De Haan et al., 2016; Gan and Chong, 2015; Glaser and Strauss, 1967; Rekalde et al., 2015), we identify the essential characteristics of an

	Coach characteristics	Coachee characteristics	Organizational conditions	Coaching actions	Outcomes
Chi-square (df)	824.5	510.24	638.9	849.6	365.1
Chi-square/df	2.865	4.184	3.877	4.486	3.272
NFI	0.798	0.809	0.795	0.722	0.855
CFI	0.904	0.903	0.901	0.911	0.903
RMSEA	0.071	0.05	0.059	0.067	0.063

Source(s): Authors' own work

Table 5. Indicators goodness of fit

	Regression standard coefficient	CR	AVE	Cronbach's alpha
Coach characteristics	0.697	0.706	0.721	0.79
Coachee characteristics	0.717	0.752	0.747	0.83
Organizational conditions	0.894	0.729	0.699	0.88
Entrepreneurial coaching actions	0.693	0.701	0.745	0.78
Outcomes	0.735	0.785	0.803	0.85

Source(s): Authors' own work

Table 6. CFA analysis

entrepreneurship coachee. However, we add to this body of research by exposing that ambition and an entrepreneurial mindset are also essential traits for entrepreneurship. Fourth, while earlier scholars (Azizi and Godarzi, 2015; De Haan *et al.*, 2013; Gan and Chong, 2015; McCarthy, 2014; Rosha, 2015; St-Jean, 2012) identified some of the characteristics of the coach; we extend this scholarship by determining a complete set of characteristics of an entrepreneurial coach. This includes the ability to design creative challenges that stimulate the coachee's mental challenges, curiosity, incubation of ideas and environmental opportunities, which can lead to the development and excellence of coaching sessions.

Fifth, we support the current scholarship (Baron and Morin, 2009; Hatler and Kauffeld, 2014) regards to the necessary organizational conditions for coaching. We add to this literature the importance of the support of senior managers in entrepreneurial coaching. Sixth, we again align with the extant literature on the actions that the coach needs to take (Kochanowski *et al.*, 2010; Ladegard, 2011; Sonesh *et al.*, 2015; Ting *et al.*, 2017). Additionally, we found that implementing the coaching process must take top priority to accomplish optimal outcomes. Seventh, in line with previous researchers (Gan and Chong, 2015; Sonesh *et al.*, 2015; Ting *et al.*, 2017), this study concurs with the outcomes and results of the coaching program. However, we add to this corpus of research that effective coaching outcomes include numerous additional benefits to the coachee. These benefits include the enhancement of creative thinking, the efficacy of coachee knowledge, the ability to generate novel ideas, faculty for creative problem solving, willingness for risk-taking, propensity for accountability and responsibility for new ideas and improvement of existing products and services. In addition, the present research identified that, following coaching, coaches are more likely to set up an idea generation unit, create new needs, increase new customers and initiate franchising.

### *5.1 Theoretical implications*

The present study's findings on the significance of coaching in SMEs offer valuable theoretical insights into the field. By investigating the synergistic relationships between different factors and contexts we have uncovered the optimal combinations that align with SMEs' evolving needs, thus bolstering their capacity to address future challenges effectively. Engaging with entrepreneurs, coaching applicants and managers to understand their perspectives and experiences could provide a more theoretical and multifaceted view of the model's effectiveness. Ultimately, to glean a more theoretical understanding of coaching's long-term effects, the prospect of a longitudinal study program holds promise. The theoretical lens of Diffusion of Innovation Theory (Rogers, 1962) could help explain how SMEs might see the clear benefits of coaching compared to other methods. This theory focuses on how new ideas, products, or practices spread within a social system. Likewise, Organizational Learning Theory (Argyris and Schön, 1997) could help support how organizations can adapt and evolve through learning processes.

### *5.2 Managerial implications*

The study underscores the importance of particular organizational conditions to roll out a coaching program effectively. SME managers must be aware of these conditions and actively foster and nurture them. A culture of management support, encouragement and open-mindedness is paramount. Furthermore, the synergy between a coach and a coachee is pivotal. Our research indicates that coaching can be beneficial but is only sometimes apt for some employees. SMEs must have a robust selection process, perhaps as an extension of their performance management system. This ensures that coaching is provided to individuals willing to leverage it for the organization's benefit. Despite the prevalence of coaching programs across various sectors, the industry needs standardized metrics to gauge their

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success. This study's insights can also be a foundation for devising evaluation metrics. By measuring outcomes against established parameters, SMEs can continuously refine their coaching programs for better efficacy. Finally, start-ups, entrepreneurial hubs and coaching training centers can adapt and implement our model. By doing so, they can ensure a more structured and outcome-driven approach to coaching, elevating the overall effectiveness of such programs in nurturing innovation and entrepreneurship. Hence, these refined implications provide actionable insights.

### 5.3 Future research

Given the importance of coaching in fostering innovation within SMEs, several avenues for future research can help deepen the understanding and refine best practices. Different coaching methodologies and styles may have varied impacts on innovation within SMEs. Researching the differential effects of these styles could offer valuable insights into best-fit approaches for specific organizational contexts. While the immediate benefits of coaching can be evident, its long-term effects on innovation, employee performance and organizational growth can be explored through longitudinal studies, tracking outcomes over extended periods.

Cultural nuances can affect how coaching is received and its effectiveness; hence comparative studies across different cultural contexts can provide insights into tailoring coaching programs to specific cultural settings. Furthermore, studies on digital coaching platforms in promoting innovation can be a relevant area of investigation.

## 6. Conclusion

Our study reveals an important advancement in the understanding of SME and entrepreneurial coaching, shedding light on crucial dimensions and indicators within the coaching model. As the field has been historically underexplored, this research has undertaken the task of identifying and validating these dimensions, contributing significantly to both theoretical insights and practical applications. The primary contribution of this study lies in its identification of the key components of the coaching program. By establishing a comprehensive framework, this program not only serves as a guide for future research but also offers a structured approach for the implementation of SME and entrepreneurial coaching initiatives. This finding holds great potential to shape the direction of coaching programs in a manner that maximizes their impact.

Furthermore, the study emphasizes the importance of clearly defining program objectives from the outset. This insight provides practitioners with a critical starting point, enabling them to align coaching initiatives with strategic goals, ultimately leading to more effective outcomes.

Building upon existing research, the study adds a novel perspective to the essential characteristics of an entrepreneurship coachee. The recognition of ambition and an entrepreneurial mindset as pivotal traits further enriches the understanding of what drives entrepreneurial success.

The exploration of the coach's characteristics emerges as another significant contribution. By presenting a comprehensive set of attributes for an entrepreneurial coach, the study elevates the role of these individuals beyond mere guidance. It highlights their ability to foster creativity and curiosity. Regarding organizational conditions, the study reaffirms the importance of specific factors identified in prior research while introducing a new dimension—the importance of support from the top (*i.e.* the SME manager). This acknowledges the role of leadership endorsement in facilitating successful coaching outcomes.

In conclusion, this study encapsulates the rich tapestry of insights garnered from this study, unveiling a comprehensive framework that not only enhances the understanding of SME and entrepreneurial coaching but also offers actionable pathways for implementation. By synthesizing existing knowledge with novel dimensions, this research equips practitioners and scholars alike with a nuanced perspective on coaching dynamics. As the landscape of coaching in SMEs continues to evolve, these findings serve as a cornerstone for future research endeavors, shaping the trajectory of coaching initiatives to come. Thus, the implications of the present study extend far beyond its immediate findings, opening up a realm of possibilities for further exploration and refinement of entrepreneurial coaching practices in SMEs. Through interdisciplinary collaborations, cross-industry comparisons, stakeholder engagement, indicator development and longitudinal assessments, the field of coaching in SMEs stands poised for dynamic growth and impactful contributions to both academia and industry.

### 6.1 Research limitations

This research, along with original and unique findings, has been accompanied by limitations that could be an opportunity for future research. The first limitation is that we rely on data exclusively from the pharmacy industry in Iran; future research should consider coaching programs in other industries and countries. Another limitation is that questionnaires were answered based on people's perceptions in a quantity part of the research. Thus, participants' perceptions and expectations are subjective and may not be accurate. An additional limitation is that the stakeholders of a program are usually biased towards it and may have exaggerated the answers they gave us.

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**Appendix 1**

**Sample of semi-structured interview questions**

- What are the characteristics of coaches in entrepreneurial coaching?
- Who has qualified coachee in entrepreneurial coaching?
- What has been the support structure of entrepreneurial coaching in small and medium enterprises?
- What steps have coaches taken in the entrepreneurial coaching of small and medium-sized companies?
- What are the achievements of entrepreneurial coaching in small and medium enterprises?

**Appendix 2**

			Before rotation		After
			Total	% of	rotation
Items				variance	% of
					variance
Basic goals	Individual	Change attitude	1.803	18.031	0.679
		Increase experience	1.485	13.588	0.476
		Self-awareness	1.368	19.353	0.442
	Organizational	Increase effectiveness	1.114	11.136	0.618
		Familiarity with new processes	0.453	2.156	0.706
		Market access	0.530	5.089	0.437
Superior goals	Individual	Superiority over competitors	0.478	6.134	0.585
		Creative thinking	0.796	7.946	0.673
		Entrepreneurial learning	0.486	6.575	0.635
	Organizational	Entrepreneurial self-efficacy	0.827	8.274	0.678
		Improve new activities	0.662	6.615	0.431
		Modify processes	0.724	3.447	0.546
Coachee character	General personality traits	Meet market needs	0.603	6.028	0.501
		Market development	1.016	10.160	0.518
		Self-awareness	1.966	9.828	0.435
	Specific personality traits	Purposefulness	0.379	1.803	0.411
		Risk-taking	0.927	13.423	0.960
		Entrepreneurial mentality	0.595	8.497	0.807
Coach character	Knowledge and skills	Ambitious	0.948	3.648	0.587
		Appropriate communication	0.699	2.690	0.411
		Creative and challenging questions	0.595	8.498	0.807
		Active listener	1.825	7.124	0.530
		Give feedback	1.945	19.453	0.881
		Experience the entrepreneurial environment	1.274	5.712	0.450
	Personality traits	Confident	1.230	11.305	0.393
		High achiever	0.866	10.161	0.514
		Understanding emotions	0.994	7.124	0.674
		Ability to transfer knowledge	1.017	4.844	0.580
		Mental challenge	1.628	3.451	0.457
		Coaching experience	1.594	5.595	0.579
	Experiences	Experience of starting new businesses	0.622	2.939	0.973
		Entrepreneurial activities	0.608	2.339	0.568
		Creating mental challenges	0.641	1.770	0.647
		Participating in the processing of ideas	1.744	3.841	0.431

**Table A1.**  
Correlations between  
items and factor  
*(continued)*

			Before rotation	After		
			Total	rotation		
Items			% of	% of		
			variance	variance		
Organizational conditions	Structural	Participate in a new product	0.910	4.334	0.653	
		Collaborate to create opportunities	1.488	5.725	0.423	
	Administrative	Entrepreneurial networking	2.859	6.457	0.358	
		Reduce redundant processes	0.640	3.022	0.078	
		Increase change capacity	0.365	1.405	0.413	
		Supporting creative ideas and designs	1.944	25.635	0.525	
		Rewarding ideas	0.595	8.087	0.512	
		Employing creative people	0.897	13.110	0.621	
	Cultural	Collaborating with coaches to facilitate matters	1.124	10.320	0.343	
		Entrepreneurial culture	2.744	4.007	0.437	
		Learning as value	0.595	2.834	0.442	
	Actions	bilateral	Emphasis on entrepreneurial coaching method	1.784	6.504	0.428
			Sense of cooperation	0.551	2.130	0.411
		Coach	Bilateral evaluation	1.060	5.064	0.489
Curiosity			0.835	3.121	0.624	
Creative behaviors			1.337	13.693	0.686	
Transparency			1.010	10.105	0.458	
Coachee		Discipline	1.137	4.374	0.584	
		A good space to present ideas	1.312	6.246	0.488	
Outcomes		individual	Question design	2.039	9.033	0.675
			Preparation and readiness	0.524	5.235	0.156
	Strengthen creative thinking		1.777	8.886	0.629	
	organizational	Turn past experiences into new knowledge	1.603	8.017	0.603	
		Strive to generate new and diverse ideas	0.373	1.438	0.694	
		Focus on providing creative solutions	0.956	4.779	0.678	
		Sense of responsibility to the presented ideas	0.812	4.014	0.702	
		Increase risk-taking	0.639	9.904	0.413	
		Starting a new business	0.691	3.453	0.599	
		Developing and improving existing products	0.625	3.261	0.578	
Succession planning	0.854	2.918	0.681			
Disseminating new knowledge	0.479	2.396	0.434			
Creating new needs for customers	0.399	1.993	0.647			

Table A1. Source(s): Authors' own work

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